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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,141	01/31/2000	Mark J. Hampden-Smith	SMP-023-2-1	4450

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EXAMINER

TALBOT, BRIAN K

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/495,141	Applicant(s) HAMPDEN-SMITH ET AL.	
	Examiner Brian K. Talbot	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-19,24-27 and 29-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-19,24-27 and 29-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The amendment filed 2/9/06 has been considered and entered. Claims 1-12,20-23 and 28 have been canceled. Claims 39-42 have been added. Claims 12-19,24-27 and 29-42 remain in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 12-19,24-27 and 29-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (6,100,633) in combination with Nanto et al. (5,921,836) further in combination with Ito et al. (6,416,174).

Okumura et al. (6,100,633) teaches a plasma display panel with phosphor microspheres. The device can also be a flat panel display (col. 1, lines 5-10). The phosphor particles can be of a particle size of 1-5 microns (col. 1, lines 55-60) and up to a particle size of .1-20 microns (col. 8, lines 15-20). The phosphor particles can comprise metal oxides or sulfide of the phosphor (col. 8, lines 10-15 and col. 4, lines 4-15). The phosphor particles are spherical in shape (col. 7, lines 30-35).

Okumura et al. (6,100,633) fails to teach applying the phosphor is a pattern by a direct write tool controllable over a x-y axis.

Nanto et al. (5,921,836) teaches an apparatus for forming fluorescent layers of a plasma display panel comprising a nozzle for ejecting the fluorescent layers which is controllable over

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an x-y axis (abstract and Figs 2-5). The dispenser is an automated syringe or nozzle (col. 4, lines 40-45).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Okumura et al. (6,100,633) process by applying the phosphor material with the apparatus of Nanto et al. (5,921,836) with the expectation of achieving more precise control over the deposition pattern desired.

Okumura et al. (6,100,633) in combination with Nanto et al. (5,921,836) fail to teach applying the phosphor composition by a direct-write toll having a viscosity of less than 30 centipoise.

Ito et al. (6,416,174) teaches an ink composition containing a solvent, pigment (i.e. phosphor) dissolved in the solvent and a dispersant. The ink composition has a surface tension of 20-50 dynes/cm and a viscosity of 1.5-20 cp. The pigment in the ink composition is comprised of particles. The ink composition can be applied to color filters, plasma displays, etc. by an ink-jet method (col. 1 line 10 – col. 4, line 15).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Okumura et al. (6,100,633) in combination with Nanto et al. (5,921,836) process by manipulating the phosphor composition to be applicable for ink-jet printing as evidenced by Ito et al. (6,416,174) with the advantages associated with the ink-jet process, i.e. more precise coating, increasing production, reduce cost, etc. (Ito et al. (6,416,174) - col. 1, lines 50-60).

With respect to claims reciting size distribution, density and the particles being hollow, it is the Examiner's position that these factors are "result effective variables" which are optimized

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through routine experimentation depending upon the desired final product. It has been well settled that the mere optimizing of well known result effective variable is deemed as an obvious modification of the art absent a showing of unexpected results.

Response to Amendment

4. Applicant's arguments with respect to claims 12-19,24-27 and 29-42 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that the prior art teaches applying phosphor pastes and not a phosphor suspension having a viscosity of less than 30 centipoise.

Ito et al. (6,416,174) teaches this features as detailed above.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 4/19/06
Brian K Talbot
Primary Examiner
Art Unit 1762

BKT